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10/035,618

12/28/2001

Nick A. Van Stralen

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05/16/2005

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EXAMINER

TRAN, KHANH C

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,618

Applicant(s)

VAN STRALEN ET AL.

Examiner

Khanh Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 9 is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/28/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andre U.S. Patent 6,693,984 B1.

Regarding claim 5, Andre invention is directed to a method and arrangement for compensating intersymbol interference (ISI) in a multi-carrier transmission system. In column 3 line 20 via column 4 line 20, figure 1 illustrates a block diagram representing part of an end to end link of a multi-carrier transmission system that uses discrete multi-tone modulation DMT with a transmitter 1 and receiver 2. The receiver includes an ISI compensation block comprising a delay circuitry 22, a time domain equalizer (TEQ) 23, tail estimation circuitry 24 and an adder 25. Figure 3 shows an arrangement for canceling the intersymbol interference in accordance with a first embodiment.

Andre does explicitly teach a tracking circuit as claimed in the application claim. However, from figure 3, tail estimation circuitry 24 (in figure 1) includes a delay 102, initial conditions 104 and filter 105, which is further shown in details of figure 5. In column 6 lines 3-20, the processing module 104 is a filter that models the inverse response of the poles of the channel response to generate the initial conditions for the transient generating filter 105. In column 8, lines 7-20, filter 105 provides a filter function

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and applying the filter function to the transient signal portion to generate at least an estimate of the full transient signal. In view of the foregoing, the transient portion is tracked by the combination of processing module 104 and filter 105. And because the tail estimation circuitry 24 performs function of tracking channel distorted signal, a person of ordinary skill in the art would have recognized the interchangeability of the tail estimation circuitry 24 as taught in Andrea invention for the corresponding tracking circuit disclosed in the application claim. The filter function models the delay unit and the widening characteristics of the TEQ 23 and delay 22 shown in figure 1 as appreciated by one of ordinary skill in the art.

The tail estimation circuitry 24 operates in parallel with the TEQ 23 and delay 22, which correspond to the claimed digital system.

Regarding claim 6, referring to figure 1, TEQ 23 is a digital filter because TEQ 23 is placed after A/D converter 21.

Regarding claim 7, as recited in claim 5, as recited in claim 5, tail estimation circuitry 24 includes a delay 102, initial conditions 104 and filter 105, which provide a filter function. In column 2, lines 50-60, the filter function may alternatively be an adaptive filter function. In view of that, tail estimation circuitry 24 is a digital model that models delay and widening characteristics of the digital filter.

Regarding claim 8, claim 8 is rejected on the same ground as for claim 5 because of similar scope. Furthermore, delay 102 of figure 3 corresponds to the means for modeling the delay of the digital filter, and initial conditions 104 and filter 105 correspond to the claimed means for modeling the widening characteristics of the digital filter.

Allowable Subject Matter

2. Claims 1-3 are allowed.

Regarding claim 1, claim 1 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of identifying distorted output signals from a digital system comprising the steps of "providing an input signal to the tracking circuit wherein the input signal has a first value when a distorted signal is input to the digital system and has a second value when a non-distorted signal is input to the digital system" and "providing an output signal from the tracking circuit wherein the output signal has a first value to indicate that a corresponding output signal from the digital system is distorted and has a second value to indicate that a corresponding output signal from the digital system is not distorted".

3. Claim 4 is allowed.

Regarding 4, claim 4 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of

identifying distorted output signals from a digital filter comprising the steps as set forth in the application claim.

4. Claim 9 is allowed.

Regarding 9, claim 9 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of identifying distorted output signals from a digital filter comprising the steps as set forth in the application claim.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wu et al. U.S. Patent 5,307,375 discloses "Two Stage Accumulator For Use In Updating Coefficients".

Harris et al. U.S. Patent 4,791,390 discloses "MSE Variable Step Adaptive Filter".

Curtis et al. U.S. Patent 5,963,599 discloses "Truncated Maximum Likelihood Sequence Estimator".

Hsiang et al. U.S. Patent 6,650,701 B1 discloses "Apparatus And Method For Controlling An Acoustic Echo Canceller".

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh Cong Tran

05/12/2005

Examiner KHANH TRAN